CLAIMS:

What is claimed is:

1. An apparatus for controlling a temperature of a substrate during substrate processing, comprising:

a semiconductor substrate processing chamber;

a substrate support disposed in said chamber, said substrate support comprising a heater electrode adapted for connection to a power source and disposed within the substrate support;

a meter coupled to said heater electrode for measuring a characteristic of the heater electrode as an indicator of temperature of the heater electrode; and

a controller coupled to said meter and said power source, wherein said controller regulates power distribution to said heater electrode, via said power source, based upon a temperature of said heater electrode, where the temperature is determined by a measured resistivity of the heater electrode.

2. The apparatus of claim 1 wherein said heater electrode comprises molybdenum.

3. The apparatus of claim 1 wherein said power source is a voltage source.

4. The apparatus of claim 1 wherein said power source is a current source.

5. The apparatus of claim 1 wherein said controller determines the temperature of said heater electrode based upon the resistivity of said heater electrode.

6. The apparatus of claim 5 wherein the determination of the temperature of said heater electrode is based upon a measured resistivity of said heater electrode in comparison to a known resistivity value for such heater electrode at 20 degrees Celsius.

7. The apparatus of claim 6 wherein current and voltage levels across said heater electrode are maintained in an instance where said measured temperature is desirable.

8. The apparatus of claim 6 wherein current and voltage levels across said heater electrode are increased in an instance where said measured temperature is low.

9. The apparatus of claim 6 wherein current and voltage levels across said heater electrode are decreased in an instance where said measured temperature is high.

10. The apparatus of claim 1 wherein said processing chamber is at least one of an etch chamber and a deposition chamber.

11. An apparatus for controlling a temperature of a substrate during substrate processing, comprising:

a semiconductor substrate processing chamber;

a substrate support disposed in said chamber, said substrate support comprising a heater electrode embedded within said substrate support, said heater electrode having a first lead and a second lead;

a power supply coupled to said first lead of said heater electrode;

a meter coupled to said second lead of said heater electrode and said power supply for measuring a characteristic of the heater electrode as an indicator of temperature of the heater electrode; and

a controller coupled to said meter and said power source, wherein said controller regulates power distribution to said heater electrode, via said power source, based upon a temperature of said heater electrode, where the temperature is determined from a measured resistivity of the heater electrode.

12. The apparatus of claim 11 wherein said heater electrode comprises molybdenum.

13. The apparatus of claim 11 wherein said power source is a voltage source.

14. The apparatus of claim 11 wherein said power source is a current source.

15. The apparatus of claim 11 wherein said controller determines the temperature of said heater electrode based upon the resistivity of said heater electrode.

16. The apparatus of claim 15 wherein the determination of the temperature of said heater electrode is based upon a measured resistivity of said heater electrode in comparison to a known resistivity value for such heater electrode at 20 degrees Celsius.

17. The apparatus of claim 16 wherein a present power level across said heater electrode is maintained in an instance where said measured temperature is desirable.

18. The apparatus of claim 16 wherein a present power level across said heater electrode is increased in an instance where said measured temperature is low.

19. The apparatus of claim 16 wherein a present power level across said heater electrode is decreased in an instance where said measured temperature is high.

20. The apparatus of claim 11 wherein said processing chamber is at least one of an etch chamber and a deposition chamber.